

What is claimed is:

1. A base plate adapted to attach a head suspension assembly to an actuator arm, the base plate comprising a flange portion with a boss tower perpendicular to a plane of the flange portion, the boss tower comprising a swaging hole with a tapered surface that increases in diameter in a direction away from the flange portion.

2. The base plate of claim 1 wherein the swaging hole includes a chamfered portion adjacent to the flange portion.

3. The base plate of claim 1 wherein the swaging hole extends through a thickness of the base plate.

4. The base plate of claim 1 wherein the swaging hole has a centerline.

5. The base plate of claim 4 wherein the swaging hole is symmetrical with respect to the centerline.

6. The base plate of claim 4 wherein the swaging hole is asymmetrical with respect to the centerline.

7. The base plate of claim 1 wherein the tapered surface of the swaging hole has an angle of between about 5 degrees and about 15 degrees.

8. The base plate of claim 1 wherein the flange portion comprises at least one processing hole for aligning the base plate with respect to the head suspension assembly and the actuator arm.

5 9. A base plate adapted to attach a head suspension assembly to an actuator arm, the base plate comprising a flange portion with a boss tower perpendicular to a plane of the flange portion, the boss tower having a swaging hole with a tapered surface, the tapered surface having a minimum diameter and a maximum diameter located further from the flange portion than the minimum diameter.

10 10. The base plate of claim 9 wherein the swaging hole includes a chamfered portion adjacent to the flange portion.

15 11. The base plate of claim 9 wherein the swaging hole extends through a thickness of the base plate.

20 12. The base plate of claim 9 wherein the tapered surface of the swaging hole has an angle of between about 5 degrees and about 15 degrees.

25 13. The base plate of claim 9 wherein the flange portion comprises at least one processing hole for aligning the base plate with respect to the head suspension assembly and the actuator arm.

14. The base plate of claim 9 wherein the swaging hole has a centerline.

15. The base plate of claim 14 wherein the swaging hole is symmetrical with respect to the centerline.

5 16. The base plate of claim 14 wherein the swaging hole is asymmetrical with respect to the centerline.

10 17. The base plate of the claim 10 wherein the tapered surface reaches the minimum diameter at the chamfered portion to form a ring portion in the swaging hole.

18. The base plate of claim 17 wherein the ring portion comprises a cylindrical surface.

15 19. A head stack assembly in a rigid disk drive comprising:  
an actuator arm;

a head suspension assembly comprising a load beam having a mounting region, a rigid region, and a spring region located between the mounting region and rigid region; and

20 a base plate adapted to attach the head suspension assembly to the actuator arm, the base plate comprising a flange portion having a boss tower located on a first surface of the flange portion and perpendicular to a plane of the flange portion, the boss tower having an outside surface and a swaging hole with a tapered surface, the tapered surface comprising a minimum diameter and a maximum diameter located further from the flange than the minimum diameter.

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20. The head stack assembly of claim 19 wherein the swaging hole extends through a thickness of the base plate.

21. The head stack assembly of claim 19 wherein the mounting region of the load beam is sandwiched between the first surface of the flange portion and an adjacent surface of the actuator arm, and the outside surface of the boss tower is received in an aperture in the actuator arm and an aperture in the load beam of the head suspension assembly.

22. The head stack assembly of claim 21 wherein the outside surface of the boss tower is adjacent to a surface of the aperture in the actuator arm and a surface of the aperture in the load beam.

23. The head stack assembly of claim 21 wherein the swaging hole of the base plate includes a chamfered portion adjacent to the flange portion.

24. The head stack assembly of claim 23 wherein the tapered surface reaches the minimum diameter at the chamfered portion to form a ring portion in the swaging hole.

25. The head stack assembly of claim 24 wherein the ring portion comprises a cylindrical surface.

26. The head stack assembly of claim 24 wherein the boss tower has a top surface and the ring portion is located between the top surface of the boss tower and the adjacent surface of the actuator arm.

27. The head stack assembly of claim 24 wherein the minimum diameter of the base plate is coplanar with the adjacent surface of the actuator arm.

5 28. The head stack assembly of claim 24 wherein the minimum diameter of the base plate is coplanar with the first surface of the flange portion.

10 29. The head stack assembly of claim 19 wherein the flange portion has a second surface on a side of the base plate opposite the boss tower and the mounting region of the load beam is welded to the flange portion on the second surface.

30. A method of swaging a head suspension to an actuator arm in a rigid disk drive, comprising the steps of:

15 providing a head suspension assembly comprising a load beam having a mounting region, a rigid region, and a spring region located between the mounting region and rigid region;

positioning an aperture in the mounting region concentric with an aperture in the actuator arm;

20 providing a base plate comprising a flange portion with a boss tower perpendicular to a plane of the flange portion, the boss tower having a swaging hole with a tapered surface, the tapered surface comprising a minimum diameter and a maximum diameter further from the flange portion than the minimum diameter;

25 inserting the boss tower into the apertures of the mounting region and the actuator arm so that the mounting region is positioned between the actuator arm and the flange portion of the base plate; and

inserting a first swaging ball into the swaging hole, the first swaging ball having a diameter greater than the minimum diameter but less than the maximum diameter.

- 5                    31.    The method of claim 30 comprising the step of inserting a second swaging ball into the swaging hole, the second swaging ball having a diameter greater than the diameter of the first swaging ball.

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